Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A power supply device characterized by comprising:

a charging section (20, 50) which is activated to charge a charging element (24, 54);

a direct-current voltage generation section (30, 60) which generates a second direct-current voltage based on a first direct-current voltage of said charging element (24, 54), and applies the generated second direct-current voltage to a load (L); and

an operation control section (40, 41, 42, 70, 71, 72, 80, 90, 100) which actuates said charging section (20, 50), determines whether a state of said load (L) to which said direct-current voltage generation section (30, 60) applies the second direct-current voltage is a lightly loaded state or not, and in a case where determining that said load (L) enters a lightly loaded state, starts detection of elapsed time, and controls said charging section (20, 50) to stop operation of charging said charging element (24, 54) when detecting a preset time period elapses after it determines that said load (L) enters the lightly loaded state.

2. (Previously Presented) The power supply device according to claim 1, characterized in that the preset time period is set in advance based on a startup time which is required from when said charging section (20, 50) is activated to when the first direct-current voltage reaches a voltage which appears when said charging section (20, 50) operates in a non-lightly loaded state.

3. (Previously Presented) A power supply device comprising:

a charging section which is activated to charge a charging element;

a direct-current voltage generation section which generates a second direct-current voltage based on a first direct-current voltage of said charging element, and applies the generated second direct-current voltage to a load; and

an operation control section which actuates said charging section, determines whether a state of said load to which said direct-current voltage generation section applies the second direct-current voltage is a lightly loaded state or not, and in a case where determining that said load enters a lightly loaded state, controls said charging section to stop operation of charging said charging element when a preset time period elapses after it determines that said load enters the lightly loaded state,

wherein

said operation control section comprises:

a load state detection section (40, 70, 80) which detects a loaded state of said load (L) and outputs a determination signal representing whether said load (L) is in a lightly loaded state or not;

an output timing setting section (41, 71) which, when said load state detection section (40, 70, 80) outputs a determination signal representing that said load (L) enters a lightly loaded state, sets a timing counted from when the determination signal is output and outputs the timing; and

an operation stopping section (42, 72, 90 100) which controls said charging section (20, 50) to stop the operation of charging said charging element (24, 54) when said output timing setting section (41, 71) outputs a determination signal representing that said load (L) enters a lightly loaded state.

4. (Original) The power supply device according to claim 3, characterized in that:

said direct-current voltage generation section (30, 60) is constituted by a switching power supply circuit having a switching element (32); and

said load state detection section (40, 70, 80) acquires a control signal for switching on or off said switching element (32) and determines whether said load (L) enters a lightly loaded state or not based on a duty ratio of the acquired control signal.

5. (Original) The power supply device according to claim 3, characterized in that said output timing setting section (41, 71) has two thresholds to be compared with level of a determination signal output from said load state detection section (40, 70, 80), and has a hysteresis by a first threshold, compared with level of a determination signal representing that said load (L) enters a lightly loaded state, being set higher than a second threshold, compared with level of a determination signal representing that said load (L) enters a non-lightly loaded state.

6. (Original) The power supply device according to claim 1, characterized in that said charging section (20, 50) is a power factor improvement circuit comprising:

said charging element (24, 54);

a coil (21, 51);

a switching element (22, 52) which repeats a switching operation of being switched on or off under control of said operation control section (40, 41, 42, 70, 71, 72, 80, 90, 100), and repeatedly flows a switching current corresponding to an input voltage of said coil (21, 51) through said coil (21, 51); and

a diode (23, 53) which rectifies the switching current flowing in accordance with energy stored in said coil (21, 51), and supplies the rectified switching current to said charging element (24, 54).

7. (Previously Presented) A power supply device comprising:

a charging section (20, 50) which is activated to charge a charging element (24, 54);

a direct-current voltage generation section (30, 60) which generates a second direct-current voltage based on a first direct-current voltage of said charging element (24, 54), and applies the generated second direct-current voltage to a load (L); and

an operation control section (40, 41, 42, 70, 71, 72, 80, 90, 100) which actuates said charging section (20, 50), determines whether a state of said load (L) to which said direct-current voltage generation section (30, 60) applies the second direct-current voltage is a lightly loaded state or not, and in a case where determining that said load (L) enters a lightly loaded state, controls said charging section (20, 50) to stop operation of charging said charging element (24, 54) when a preset time period elapses after it determines that said load (L) enters the lightly loaded state;

wherein

the preset time period is set in advance based on a startup time which is required from when said charging section (20, 50) is activated to when the first direct-current voltage reaches a voltage which appears when said charging section (20, 50) operates in a non-lightly loaded state and is set in a range of 100 μsec to 10 sec.

8. (Currently Amended) A method for controlling a power supply device comprising a charging section (20, 50) which is activated to charge a charging element (24, 54), and a direct-current voltage generation section (30, 60) which generates a second direct-current voltage based on a first direct-current voltage of said charging element (24, 54) and applies the generated second direct-current voltage to a load (L), characterized by comprising:

a step of determining whether said load (L) is in a lightly loaded state or not;

a step of starting detection of elapsed time from the timing at which said load (L) enters in a lightly loaded state; and

a step of controlling said charging section (20, 50) to stop operation. when the preset time period elapses after it is determined that said load enters a lightly loaded state.

9. (Previously Presented) The method for controlling a power supply device according to claim 8, characterized in that

the preset time period is determined based on a startup time which is required from when said charging section is activated to when the first direct-current voltage reaches a voltage which appears when said charging section operates in a non-lightly loaded state.

10. (Previously Presented) The method for controlling a power supply device according to claim 9, wherein the preset time period is set in a range of 100 μsec to 10 sec.

11. (Currently Amended) A method for controlling a power supply device having a charging section which is activated to charge a charging element, and a direct-current voltage generation section which generates a second direct-current voltage based on a first direct-current voltage of said charging element and applies the generated second direct-current voltage to a load, comprising:

a determining step of determining whether said load is in a lightly loaded state or not; and

a control step of, in a case where it is determined that said load enters a lightly loaded state, controlling said charging section to stop operation, when the preset time period elapses,

wherein

said control step comprises:

a step of starting detection of elapsed time from the timing at which said determining step determines that said load (L) enters in a lightly loaded state;

a step of outputting control signal when it is detected that ~~after~~ the preset time period elapsed after said determining step determines that said load enters a lightly loaded state; and

a step of stopping the operation of charging said charging element when said control signal is output.

12. (Currently Amended) A power supply device comprising:

a charging section which is activated to charge a charging element;

a direct-current voltage generation section which generates a second direct-current voltage based on a first direct-current voltage of said charging element, and applies the generated second direct-current voltage to a load; and

an operation control section which actuates said charging section, determines whether a state of said load to which said direct-current voltage generation section applies the second direct-current voltage is a lightly loaded state or not, and in a case where determining that said load enters a lightly loaded state, controls said charging section to stop operation of charging said charging element when a preset time period elapses after it determines that said load enters the lightly loaded state,

wherein

said operation control section comprises:

a section which detects a loaded state of said load and outputs a determination signal when said load is in a lightly loaded state;

a section which starts detection of elapsed time when the determination signal is output and outputs a determination signal representing that the preset time period elapses ~~after~~ when the determining signal is output; and

a section which controls, in response to the determination signal, said charging section to stop the operation of charging said charging element.